IN THE CLAIMS

1-30. (Cancelled)

31. (Currently Amended) A method of reproducing audio sound by an ultrasound-producing device comprising the steps of:

linking the audio signal to be produced by side band amplitude modulation to a carrier signal in the ultrasonic frequency range;

subjecting the modulated ultrasonic signal to dynamic error compensation~~; and subjecting the compensated ultrasonic signal to frequency characteristic linearization~~ and then passing said signal to an ultrasonic transducer; and

reducing the amplitude of the ultrasonic carrier signal at said transducer.

32. (Previously Presented) The method as set forth in claim 31 wherein the ultrasonic signal is suppressed in modulation breaks, when therefore no audio signal is to be reproduced.

33. (Previously Presented) The method as set forth in claim 31 wherein the low frequency audio signal which is to be reproduced is subjected to frequency characteristic linearization prior to modulation.

34. (Previously Presented) The method as set forth in claim 31 wherein the audio signal to be reproduced is subjected to double side band amplitude modulation or single side band amplitude modulation.

35. (Previously Presented) The method as set forth in claim 31 including the step of suppressing the ultrasonic carrier by an amount of between about 8 and 20 dB.

36. (Previously Presented) The method of claim 35 wherein the ultrasonic carrier is suppressed by about 12 dB.

37. (Previously Presented) The method as set forth in claim 31 wherein the frequency of the ultrasonic carrier signal is in the range of between about 40 kHz and 500 kHz.

38. (Previously Presented) The method as set forth in claim 31 wherein in a double side band amplitude modulation procedure the lower side band is suppressed.

39. (Previously Presented) The method as set forth in claim 31 including the step of effecting distortion removal (frequency characteristic linearization) after amplitude modulation.

40. (Previously Presented) The method as set forth in claim 31 wherein a plurality of ultrasonic transducers are provided which are connected in parallel.

41. (Previously Presented) The method as set forth in claim 40 wherein the transducers are arranged as densely as possible on a plate.

42. (Previously Presented) The method as set forth in claim 31 wherein modulation is effected by a digital signal processor.

43. (Previously Presented) The method as set forth in claim 31 wherein a water-air bubble mixture is arranged in the ultrasound propagation path.

44. (Previously Presented) The method as set forth in claim 43 wherein the water-air bubble mixture is provided in a headset earpiece.

45. (Previously Presented) The method as set forth in claim 31 wherein, arranged in the path of propagation of the ultrasonic beams, is a sound-transmissive medium containing cavities which together with the medium material have a plurality of Helmholtz resonators which are tuned to the first harmonic of the ultrasonic signal.

46. (Previously Presented) The method as set forth in claim 45 wherein the cavities are filled with a non-linear medium.

47. (Previously Presented) The method as set forth in claim 31 wherein a plurality of ultrasonic transducers are arranged in an annular array.

48. (Previously Presented) The method as forth in claim 31 wherein the ultrasonic carrier signal and the side band signal are fed to separate transducers.

49. (Previously Presented) The method as set forth in claim 31 wherein the aperture angle of an ultrasonic transducer is approximately in the range of between 0.5 and 10°, preferably 1°.

50. (Previously Presented) The method as set forth in claim 31 including subjecting the audio signal to a pre-distortion effect.

51. (Previously Presented) The method as set forth in claim 31 including pivoting the ultrasonic beam into a desired direction.

52. (Previously Presented) The method as set forth in claim 51 including pivoting the ultrasonic beam by a mechanical pivoting device for the ultrasonic radiating device and/or electronic actuation of the ultrasonic radiating devices in the manner of a so-called "phased array" and/or there is a pivotable reflector which reflects the ultrasound into a desired direction.

53. (Currently Amended) The method as set forth in claim 31 wherein the ultrasonic apparatus forms an ultrasonic wallpaper so that, when listening, the impression is that the sound is coming directly from the wall ~~(or~~ or from the wallpaper on the ~~wall)~~ wall.

54. (Previously Presented) The method as set forth in claim 31 wherein the carrier band of the ultrasonic radiating band and the ultrasonic beam side band are produced with different transducers.

55. (Previously Presented) The method as set forth in claim 31 wherein the audio LF signal is subjected to psychoacoustic pre-processing (in particular psychoacoustic pre-

distortion) and there are provided suitable means therefor.

56. (Previously Presented) The method as set forth in claim 31 including an acoustic travelator so that when a listener is moving past an ultrasonic transducer only the moving listener is radiated with sound but not the surrounding area in space.

57. (Previously Presented) The method as set forth in claim 31 including at least one ultrasonic transducer which exclusively or additionally to ultrasonic irradiation serves as a transmitting and/or receiving device of a distance-measuring device based on ultrasound.

58. (Previously Presented) The method of claim 31 wherein the properties of the audio signal to be reproduced, in particular the lower limit frequency thereof, are determined by the magnitude of the reflection area in order thereby to compensate for frequency characteristic linearization or distortion removal of the audio signal.

59. (Previously Presented) The method as set forth in claim 31 wherein the audio signal to be reproduced is subjected in a modulator to frequency and/or phase modulation.

60. (Currently Amended) An apparatus for reproducing audio sound using ultrasound comprising:

means for linking an audio signal to be reproduced by side band amplitude modulation to a carrier signal in the ultrasonic frequency range;

means for subjecting the modulated ultrasonic signal to dynamic error compensation ~~and for subjecting the compensated ultrasonic signal to frequency characteristic linearization~~ and then passing said signal to an ultrasonic transducer; and

means for reducing the amplitude of the ultrasonic carrier signal.

61. (Previously Presented) The apparatus as set forth in claim 60 including means for suppressing the ultrasonic signal in modulation breaks, when therefore no audio signal is to be reproduced.

62. (Previously Presented) The apparatus as set forth in claim 60 including means for subjecting the audio signal to be reproduced to frequency characteristic linearization prior

to modulation.

63. (Previously Presented) The apparatus as set forth in claim 60 wherein the audio signal to be reproduced is subjected to double side band amplitude modulation or signal side band amplitude modulation.

64. (Previously Presented) The apparatus as set forth in claim 60 including means for suppressing the ultrasonic carrier by an amount of between about 8 and 20 db.

65. (Previously Presented) The apparatus as set forth in claim 64 including means for suppressing the ultrasonic by about 12 db.

66. (Previously Presented) The apparatus as set forth in claim 60 wherein the frequency of the ultrasonic carrier is in the range of between about 40 kHz and 500 kHz.

67. (Previously Presented) The apparatus as set forth in claim 60 wherein in a double side band modulation procedure, means are provided for suppressing the lower side band.

68. (Previously Presented) The apparatus as set forth in claim 60 including means for effecting distortion removal (frequency characteristic linearization) after amplitude modulation.

69. (Previously Presented) The apparatus as set forth in claim 60 including a plurality of ultrasonic transducers which are connected in parallel.

70. (Previously Presented) The apparatus as set forth in claim 69 wherein the transducers are arranged as densely as possible on a plate.

71. (Previously Presented) The apparatus as set forth in claim 60 wherein modulation is effected by a digital signal processor.

72. (Previously Presented) The apparatus as set forth in claim 60 wherein a water-

air bubble mixture is arranged in the ultrasound propagation path.

73. (Previously Presented) The apparatus as set forth in claim 72 wherein the water-air bubble mixture is provided in a headset earpiece.

74. (Previously Presented) The apparatus as set forth in claim 60 wherein, arranged in the path of propagation of the ultrasonic beams is a sound-transmissive medium containing cavities which together with the medium material have a plurality of Helmholtz resonators which are preferably tuned to the first harmonic of the ultrasonic signal.

75. (Previously Presented) The apparatus as set forth in claim 60 wherein the cavities are filled with a non-linear medium.

76. (Previously Presented) The apparatus as set forth in claim 60 wherein a plurality of ultrasonic transducers are arranged in an annular array.

77. (Currently Amended) The apparatus as set forth in claim 60 wherein the ultrasonic ~~carrrer~~ carrier signal and the side band signal are fed to separate transducers.

78. (Previously Presented) The apparatus as set forth in claim 60 wherein the aperture angle of an ultrasonic transducer is approximately in the range of between 0.5° and 10°.

79. (Previously Presented) The apparatus as set forth in claim 78 wherein the aperture angle is 1°.

80. (Previously Presented) The apparatus as set forth in claim 60 including means for subjecting the audio signal to a pre-distortion effect.

81. (Previously Presented) The apparatus as set forth in claim 60 including means for pivoting the ultrasonic beam by a mechanical pivoting device for the ultrasonic radiating and/or electronic actuation of the ultrasonic radiating devices in the manner of a so-called "phased array" and/or there is a pivtotable reflector which reflects the ultrasound into a

desired direction.

82. (Currently Amended) The apparatus as set forth in claim 60 wherein the ultrasonic apparatus forms an ultrasonic wallpaper so that, when listening, the impression is that the sound is coming directly from the wall ~~(or~~ or from the wallpaper on the ~~wall)~~ wall.

83. (Previously Presented) The method as set forth in claim 60 wherein the carrier band of the ultrasonic radiating beam and the ultrasonic beam side band are produced with different transducers.

84. (Previously Presented) The apparatus as set forth in claim 60 including means for subjecting the audio LF signal to psychoacoustic pre-processing, particularly psychoacoustic pre-distortion.

85. (Previously Presented) The apparatus as set forth in claim 60 including an acoustic travelator so that when a listener is moving past an ultrasonic transducer only the moving listener is radiated with sound but not the surrounding area in space.

86. (Previously Presented) The apparatus as set forth in claim 60 wherein the properties of the audio signal to be reproduced, in particular the lower limit frequency thereof, are determined by the magnitude of the reflection area in order thereby to compensate for frequency characteristic linearization or distortion removal of the audio signal.

87. (Previously Presented) The apparatus as set forth in claim 60 wherein the audio signal to be reproduced is subjected in a modulator to frequency and/or phase modulation.

88. (Previously Presented) In a method of using ultrasonic reproduction apparatus as set forth in claim 60 including the step of using said apparatus in an art exhibition and/or in a museum or for active noise compensation and/or in conference systems and/or as a loudspeaker as a headset substitute and/or for directed sound radiation on a stage (prompter) and/or as an addressable loudspeaker and/or for sound radiation of computer workstations and/or as a surround loudspeaker and/or for acoustic irradiation of quite specific zones and/or

in a hands-free device.

89. (Previously Presented) In a method of using ultrasonic apparatus as set forth in claim 60 including the step of using said apparatus for sound irradiation of a region through which the listener is moving or through which the listener is moved, wherein the reproduction level of the ultrasonic signal is always directed.

90. (New) The method according to claim 31, further comprising subjecting the compensated ultrasonic signal to frequency characteristic linearization.

91. (New) The method according to claim 60, further comprising means for subjecting the compensated ultrasonic signal to frequency characteristic linearization.